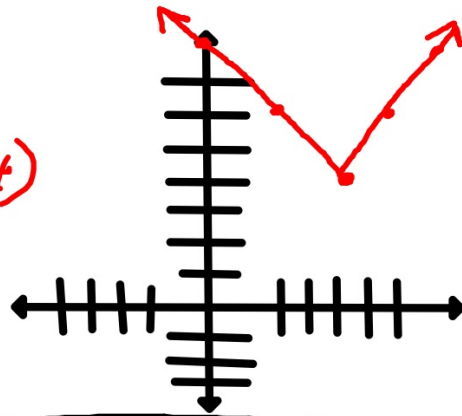


Graph:  $2|x-3|+4$

$$a = \frac{2}{1} \quad h = 3 \quad (3, 4) \\ k = 4$$



---

The graph  $f(x) = |x|$  is translated 5 units up, translated 2 units to the right and vertically compressed by a factor of  $\frac{2}{3}$ .  $f(x) = \frac{2}{3}|x-2|+5$

- ☺ A **system of equations** is a collection of equations in the same variables.
- ☺ The solution of a system of two linear equations in  $x$  and  $y$  is an ordered pair,  $(x, y)$ , that satisfies both equations.
- ☺ The solution  $(x, y)$  is the point of intersection for the graphs of the lines in the system.

### Classifying Systems of Equations

If a system of equations has at least one solution, it is called **consistent**.

- If a system has exactly one solution, it is called **independent**.
- If a system has infinitely many solutions, it is called **dependent**.

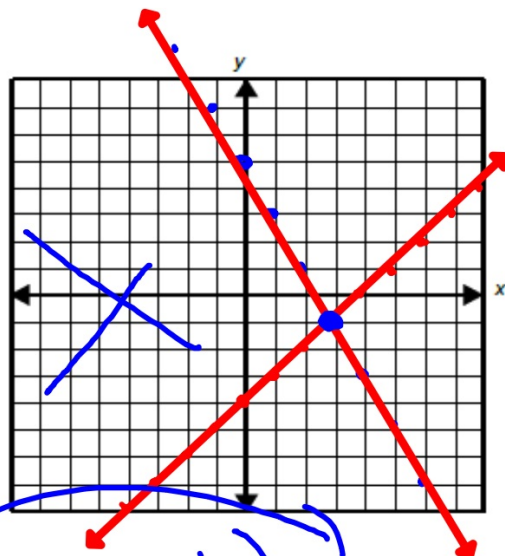
If a system does not have a solution, it is called **inconsistent**.

$$1) \begin{cases} y = x - 4 \\ y = -2x + 5 \end{cases} \quad -1 = 3 - 4 \checkmark \quad m = \frac{1}{1} \quad b = -4$$

$$m = \frac{-2}{1} \quad b = 5$$

$$\leftrightarrow -\frac{2}{1} \text{ or } \frac{2}{-1}$$

Consistent  
independent



(3, -1)

$$2) \begin{cases} x + 3y = 6 \\ x + 3y = -3 \end{cases}$$

$$x + 3y = 6$$

$$-x \quad -x$$

$$\frac{3y}{3} = \frac{-x+6}{3} \quad \frac{6}{3}$$

$$y = -\frac{1}{3}x + 2$$

$$m = -\frac{1}{3} \quad b = 2$$

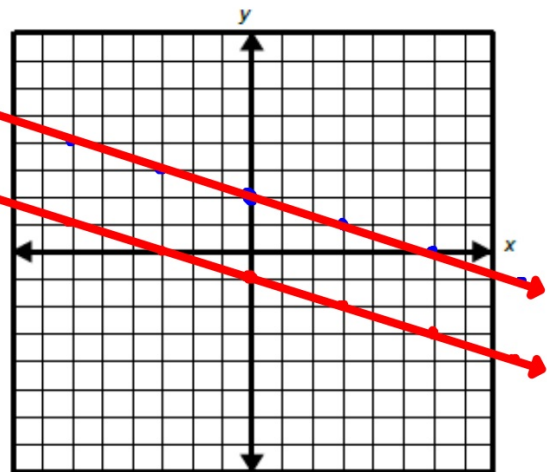
$$\cancel{x} + 3y = -3$$

$$-x \quad -x$$

$$\frac{3y}{3} = \frac{-x-3}{3} \quad \frac{-3}{3}$$

$$y = -\frac{1}{3}x - 1$$

$$m = -\frac{1}{3} \quad b = -1$$



No Solution  
Inconsistent.

$$3) \begin{cases} x - 2y = 4 \\ 3x - 6y = 12 \end{cases}$$

$$\begin{array}{r} x - 2y = 4 \\ -x \quad -x \end{array}$$

$$\begin{array}{r} -2y = -x + 4 \\ \frac{-2y}{-2} = \frac{-x}{-2} + \frac{4}{-2} \end{array}$$

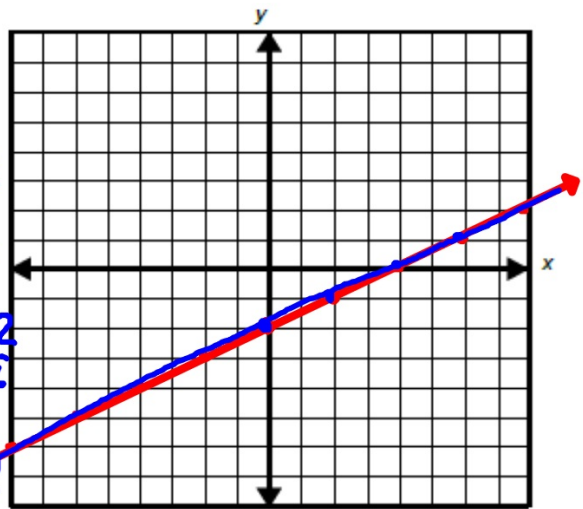
$$\underline{y = +\frac{1}{2}x - 2}$$

$$3x - 6y = 12$$

$$\begin{array}{r} -3x \quad -3x \end{array}$$

$$\begin{array}{r} -6y = -3x + 12 \\ \frac{-6y}{-6} = \frac{-3x}{-6} + \frac{12}{-6} \end{array}$$

$$\underline{y = \frac{1}{2}x - 2}$$



Infinite Solutions  
Consistent  
Dependent

# Homework

## 3.1 - #1 - #8

### graphing systems

